

**Response to Comments from  
MDHSS on Section 4: Risk Assessment Workplan  
Draft Site-Specific Environmental Baseline Survey  
St. Louis Army Ammunition Plant  
St. Louis, Missouri**

074X

Site:	SLAAP
ID #	N04210021222
Break:	3.0
Other:	

- 1) While the St. Louis Army Ammunition Plant (SLAAP) site is located within St. Louis City, it is very near the city limits. Even with the city's restriction on private wells, there is the potential that private wells could exist within one-quarter mile of the site. In addition, there are several unincorporated areas of St. Louis County within 3 miles of the site. There is no restriction on drilling private wells in these areas. For this reason, groundwater sampling at the site needs to be assessed and adequately characterized.

Response: The extent of groundwater contamination will be fully characterized as part of the site investigation. In the event that site-related groundwater contamination is found to extend to areas where there are no restrictions on groundwater use, the risk assessment will evaluate potential exposure to groundwater.

- 2) The most recent guidance from EPA Region VII states that all detected chemicals should be carried all the way through the risk assessment process. After the quantitative evaluation is completed, chemicals that are not site-related may be removed from the analysis. At SLAAP, the advantage of this approach is that prospective buyers can receive an evaluation of the total risk from the site, regardless of whether that risk is the result of Army activities. The Missouri Department of Health and Senior Services (DHSS) concurs with EPA's guidance.

Response: We have not been able to obtain copies of the Region VII guidance referred to in this comment, however, EPA has recently developed guidance for addressing risks associated with background chemicals ("Role of background in the CERCLA Cleanup Program", OSWER 9285.6-07P, April 26, 2002). This guidance specifies how background chemicals are to be evaluated in the baseline risk assessment, including specific examples that would be directly applicable for SLAAP. A copy of this OSWER was supplied to Mr. Maley at DHSS. Consistent with this guidance, the risk assessment at SLAAP will evaluate background as follows:

- For inorganic chemicals, such as arsenic, site levels will be compared to both risk-based screening levels and local background.
  - If the concentrations are within the local background range AND below the risk-based screening levels, they will be excluded from further evaluation in the risk assessment.
  - If the concentrations are within the local background range but exceed the risk-based screening levels, they will not be evaluated quantitatively in the risk assessment, but will be discussed in the uncertainty analysis (see hypothetical case #2 in the OSWER document).



- If the concentrations exceed the local background range but are below the risk-based screening levels, they will be excluded from further evaluation in the risk assessment.
- If the concentrations exceed the local background range AND the risk-based screening levels, they will be retained as COPCs for quantitative evaluation in the risk assessment.
- All organic chemicals will be assumed to be of anthropogenic origin (i.e., not naturally-occurring).
  - If the maximum concentrations are below the risk-based screening levels, they will be excluded from further evaluation in the risk assessment.
  - If the concentrations are above the risk-based screening levels, they will be retained as COPCs for quantitative evaluation in the risk assessment.
  - Note that several “background” locations will be selected along the rail line in order to differentiate those chemicals that are related to normal rail operations from those that are related to industrial activities at SLAAP. Risks associated with these “background” chemicals will be evaluated quantitatively in the risk assessment. The risk assessment will discuss the overall risks associated with rail line areas at SLAAP, as well as the relative contribution from non-site-specific (rail line) and site-specific (industrial) sources.

The workplan will be expanded to more clearly describe this procedure.

- 3) DHSS disagrees with the statement that “the risk assessment is interested in determining only risks resulting from site-related impacts.” The risk assessment should address all risks associated with the site. DHSS would not expect the military to cleanup contamination that was not the result of their activities; however, prospective buyers of the property deserve a risk assessment that is as complete as possible. DHSS would consider the risk assessment incomplete without considering all risks. For this reason sampling should be performed along the rail line, especially since St. Louis was an industrial area long before the plant was constructed in 1941.

Response: The statement that “the risk assessment is interested in determining only risks resulting from site-related impacts” is taken somewhat out of context. The full sentence was “Since the risk assessment is interested in determining only risks resulting from site-related impacts, metals and essential nutrients will not be selected as COPCs unless they exceed background concentrations for the area surrounding the site”. As identified in the response to comment #2, the risk assessment will evaluate risks from contamination found on-site, regardless of whether it is related to military activity. Consistent with OSWER 9285.6-07P, the sentence in question will be removed from the workplan and replaced with a more detailed explanation of how the COPC selection process will be conducted (as described above).

- 4) Unless the complete site history is known, it should be assumed that there might be contamination present as a result of pre or post-military activity. For this reason, DHSS recommends samples be evaluated for a wide range of contaminants.

According to the Department of Defense's guidance, transfer of property is dependent on "a finding the property is suitable for transfer for the use intended by the transferee, and the intended use is consistent with the protection of human health and the environment." Those determinations cannot be made unless the risk assessment includes all risks present on the site.

Response: Samples previously collected across the site for the comprehensive EBS were evaluated for a wide range of contaminants. As a result, the nature of the contaminants found on-site is well-known. The analytical methods proposed for risk assessment samples were selected based on this knowledge of site contamination.

- 5) Regarding the comment on Page 4-5 (Section 4.3.1), it is true that RAGS does not address building exposure. There are, however, other methodologies available. It may not be appropriate to add those risks to the risk determined using RAGS methodology; however, the risks associated with occupying the building should be evaluated.

Response: Because the RAGS methodology does not address risks from contaminated buildings, contamination in buildings on-site is being evaluated by comparison to standards for lead, asbestos and PCBs. As described in the workplan, this activity was to be included as part of the site characterization, not part of the risk assessment. Given that this comparison will provide important risk information to any prospective buyer, as well as the regulatory community, the scope of the risk assessment will be expanded to include a summary of this comparison.

- 6) In regard to Section 4.3.2, we understand the concept behind dividing the site into "exposure areas" for evaluation. The document needs to state, however, that if several buildings are removed, the risk assessment will calculate risks for a RME who is exposed to the newly exposed soils. Again, the concept of exposure areas is valid, but should not be used as a method of dividing a potential receptor's exposure into pieces in order to reduce the calculated risks.

Response: The approach to be used in the risk assessment is intended to provide a conservative (health-protective) evaluation of risks under a variety of future use conditions. As noted in Section 4.3.2, while there are a number of buildings present at SLAAP, it is not known which of these buildings will be demolished and which will remain. To address this uncertainty, the risk assessment will evaluate soils under each building, and under areas surrounding the buildings, as separate exposure areas, using a systematic sampling grid to select representative samples from each exposure area. Note that this approach should not result in a reduction of calculated risks, since areas of relatively high contamination are not being averaged with areas of lower concentration (i.e., the primary concern raised in the comment).

In addition to calculating risks for individual exposure areas, the risk assessment will also calculate risks as follows:

- Site-wide data. Risk calculations will be performed for all soils, treating them as a single exposure unit, assuming that all current structures (buildings, parking lots, rail lines, etc.) are removed.
- Hotspot data. A number of potential “hotspots” are being evaluated as part of the site-specific EBS. The potential “hotspots” are relatively small areas where known or suspected releases have occurred. Examples would include stained soils under machinery, locations where the comprehensive EBS found chemicals present above screening levels, or areas where chemicals were handled but where no data currently exist. These hotspot areas typically cover a small fraction of the area covered by the building they are associated with. If data collected as part of the site-specific EBS indicate that these areas indeed contain contamination above screening levels, they will be individually evaluated in the risk assessment.

The discussion in the workplan on exposure areas will be expanded to include this discussion.

- 7) EPA’s worker ingestion rate of 50 mg/day is for an indoor worker. For employees who spend part of their workday outdoors, an ingestion rate of 100 mg/day should be used. The soil ingestion rate for excavators should be considerably higher. Given the potential for exposure of excavators, the soil intensive contact rate of 480 mg/day should be used.

Response: Regarding commercial/industrial workers, we are unaware of any EPA guidance stating that 50 mg/day is specific for indoor workers. EPA Industrial PRGs are based on a 50 mg/day ingestion rate, and are typically applied to standard industrial worker scenarios as are envisioned for SLAAP. In contrast, the MDNR Industrial CALM values assume a 100 mg/day ingestion rate. Given that there is a difference in interpretation of industrial ingestion rates, the risk assessment will use both values. The 100 mg/day ingestion rate requested by DHSS will be used as the RME value, the standard EPA value of 50 mg/day will be used to evaluate CTE.

Regarding the excavator scenario, the 480 mg/day ingestion rate originally proposed by EPA for intensive soil contact has recently been revised by EPA to 330 mg/day (EPA, 2001)<sup>1</sup>. This value is specific to a construction worker scenario. The SLAAP risk assessment will use this new value to evaluate the excavation/construction worker scenario.

- 8) The dermal soil adherence factors given in Section 4.3.3 should be changed. The use of a teenage soccer player is an acceptable surrogate for a trespasser, however, the values used should be those from RAGS, Part E (EPA, 2000), rather than the older values given in the Exposure Factors Handbook (EPA, 1997). The mean value listed in Part E is 0.04 mg/cm<sup>2</sup>, and is appropriate for the CTE. The 95 percentile is listed as 0.3 mg/cm<sup>2</sup> and is appropriate for the RME. For excavators/utility workers, the 0.2 mg/cm<sup>2</sup> value proposed is acceptable for the CTE. For the RME, however, the 95

percentile given in Part E is 0.9 mg/cm<sup>2</sup>.

Response: The adherence values requested by DHSS will be used in the risk assessment.

- 9) The dermal absorption rates use in the risk evaluation should also be revisited. Some chemicals have specific dermal absorption rates. When available, the values listed in RAGS, Part E should be used. That guidance also provides a default dermal absorption rate of 10% for semi-volatile organic compounds.

Response: The dermal absorption values presented in the workplan will be revisited to insure that the values used in the risk assessment are consistent with those presented in RAGS, Part E (EPA, Sept. 2001).

<sup>1</sup> EPA. 2001. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355.4-24. March.